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An Investigation of the Various Factors Influence on Exports in Sri Lanka

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Abstract:
International trade as an engine of economic growth since a nation's economic growth and development depends on the international trade. Even though, Exports of goods and services as a share of GDP have been declining for now over a decade in Sri Lanka. In this background, the present study attempts to identify the influence of various factors on exports in Sri Lanka by gathering time series data over a period 1977 to 2015. To obtain the study objective, Augmented Dickey Fuller unit root tests, Normalized Cointegration test and Vector error correction model were employed by using the explanatory variables namely GDP per capita growth, gross capital formation, inflation, foreign direct investment and exchange rate.
According to the results, the Normalized Cointegration test found that gross capital formation and inflation are positively influence on Sri Lanka's exports whereas GDP per capita growth negatively influence on Sri Lanka's exports. Further, other explanatory variables including foreign direct investment and exchange rate are not associated with export since those variables having insignificant results. Finally, short – run impacts of selected explanatory variables found using Vector Error Correction test. Accordingly, GDP per capita growth, foreign direct investment and exchange rate are associated with exports in short- run. In particular, foreign direct investment positively impacts on exports while GDP per capita growth and exchange rate found to be negatively impacts.

Keywords: Export, Sri Lanka, Foreign direct investment, Gross capital formation

1. Background of the Study

International trade as an engine of economic growth since a nation's economic growth and development depends on the international trade (Sajjad and Mahmood, 2014).There is a strong relationship between trade and economic growth of many countries. It had been proved by most scholars in different countries. When a country obtained comparative advantage in export consequently consumers can obtain various commodities at cheaper prices as well as the levels of domestic income and employment opportunities also would be increased. It would help to an economy to move into economic growth (Nadeem et al., 2012 and Majeed and Ahmad, 2006).Thus, Exports of goods and services represent as one of the most key sources of foreign exchange income that ease the pressure on the balance of payments and create employment opportunities.

If exports grow at a faster rate as compared to imports, it would lead to increased economic growth, enhancement in balance of payments and improved foreign exchange (Sajjad and Mahmood, 2014). Despite, in Sri Lanka imports exceeding exports and growth in imports has tended to outpace growth in exports since Sri Lanka depends on certain specific primary products for their exports and imports a lot of the manufactured goods since independence. Thus, export performance of commodities is poor compared to import commodities in Sri Lanka indicating earnings from exports is lower relative to expenditure on imports good and services.

Exports of goods and services as a share of GDP have been declining for now over a decade in Sri Lanka. According to the world bank data, in the year 2000 exports as a share of GDP was at 39.01 percent but in the year 2015 exports was 20.53 indicating the tendency of the exports as a share of GDP have been decreasing continuously (world bank indicators, 2015). Presently, export's contribution in Sri Lanka was 10,505 million us dollars in 2015 it was lower compared to 2014 as export's contribution was recorded 11,130 million us dollars. Further, according to the recent annual central bank report, earnings from exports also contracted in 2015. Thus, earnings from exports, which grew at 7.1 percent in 2014 though, it was declined by 5.6 per cent in 2015. It derived by the drop in both agricultural as well as industrial exports.

Thus, exports which is not support to obtain surplus in the trade balance in Sri Lanka as the government of Sri Lanka has been implemented several trade policies since independent to increase to obtain surplus in trade. Even though, Sri Lanka has been experiencing trade deficit continuously. Thus, Sri Lanka has steadily drive a trade deficit since 1950 with imports exceeding exports and growth in imports has tended to outpace growth in exports. In particular, at the present, Sri Lanka's trade deficit which is persistently on the increase for over a decade. In order to the central bank annual report, presently the deficit in the trade balance which also has been expanded. The expenditure on imports, higher reduction in exports, brought to the expansion in the trade deficit in 2015. Consequently, the trade deficit expanded by 1.7 per cent to US dollars 8,430 million in 2015, from the US dollars 8,287 million recorded in 2014 (Central bank annual report, 2015).

The tendency of the trade deficit is that it is driven by declining export performance, even in the post-war period. Further, it shows signs of losing worldwide competitiveness. Tendency of trade deficit is driven not only by declining exports, but also by increasing imports. As mentioned above, the expansion of the trade deficit which was mainly driven by the increase in the imports goods related to the exports goods. While, in Sri Lanka apparel and tea, are Sri Lanka's key exports. Whereas, apparel has threats that persist competitive with higher end products as well as the number of firms, employment and export share of the apparel sector has been shrinking. Further, if tea has remains stable in revenue due to global price, nonetheless tea also highly vulnerable account of lack of value addition and the comparatively high unit costs of production to export tea.

According to the available data, the trade balance has been existing unfavorably in Sri Lanka, even in the post-war period. Verité Research (2013) also revealed that the trend of the deficit is that is driven by decreasing export performance, even in the post-war period. It leads to losing global competitiveness and also induces to huge expenditure on import. Hence, to ensure a sustainable growth of exports, factors influencing the export performance of a country need to be identified and then policies need to be framed to induce exports performance by implementing policies accordingly. Thus, the contrary trade balance induces to explore the factors that determine the export performance.

In this context, the present study attempts to identify the influence of various factors on exports in Sri Lanka by using secondary data.

2. Problem Statement
The trend in growth of imports outpaces the growth in exports. As a result, Sri Lanka has consistently been running a trade deficit.
Sri Lanka has been experiencing trade deficit continuously. Particularly the trend in growth of imports outpaces the growth in exports. Imports has always increased at a higher pace than export. As a result, Sri Lanka has steadily been running a trade deficit.Due to this trade deficit then it makes sense to examining the factors that could be cause of this lower performance of exports compared to import.

3. Objectives of the Study
The main objective of this study is to investigate the factors that influence exports in Sri Lanka.

4. Conceptual Frame Work
The following conceptual framework establishes link between exports and influence factors on exports
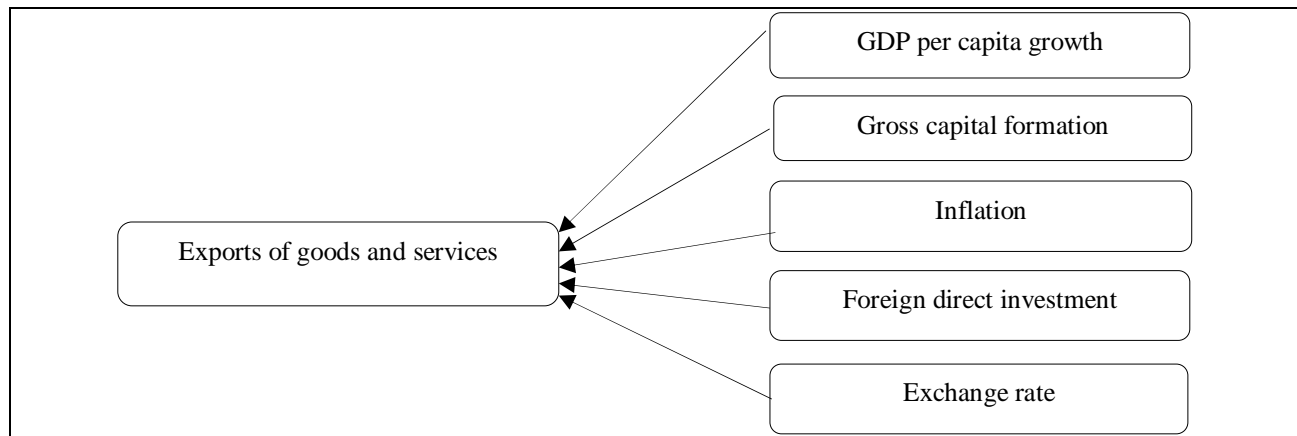

Figure 1: Conceptual Framework
Source: Tovonjatovo, and Dong (2015), Muthamia and Muturi (2015) and Majeed, and Ahmad (2006)

5. Methodology
The study utilizes the annual time series data to obtain the study objective which is to investigate the factors that determine exports in Sri Lanka covering the period between 1977 to 2015.This period has been chosen because of fact that trade liberalization was implemented in 1977.Data on all the variables have been collected from World Development Indicators. Selected regression methods are employed to test the research hypothesis, including unit root tests, Normalized Cointegration test and error correction model. The unit roots test will be performed in order to avoid spurious model due to trending variables since the use of nonstationary variables in the time series analysis leads to misleading inferences (Muthamia and Muturi, 2015).For check for the unit root in each variable, the present study uses the Augmented Dicker Fuller (ADF) test.Johansen's co-integration multivariate procedure is to be employed to show whether the variables are co- integrated in the long runif the data has unit root(Muthamia and Muturi, 2015).

At last, the Error Correction Model (ECM)is utilized to investigate the short run dynamics. The following equation is to be estimated to estimate the influence factors on exports.

$$EX_t \square \beta_0 + \beta_1 GDP_t + \beta_2 GCF_t + \beta_3 INF_t + \beta_4 FDI_t + \beta_5 ER_t + \varepsilon_t$$

Where:
EX is Exports of goods and services (% of GDP) which represents the dependent variable. Other variables indicate independent variables in this model.

Such as,
GDP: GDP per capita growth (annual %)
GCF: Gross capital formation (% of GDP)
INF: Inflation (annual %)
FDI: Foreign direct investment (% of GDP),
ER: Exchange rate (LCU per US$, period average)
β_0: Intercept parameter
ε: Stochastic error term

6. Literature Review

There have been numerous studies conducted to identify the influence factors on export performance in various countries. The present study analyses the following literatures relative to this study.

Bhavan (2016) who analyzed the determinants of the export performance of Sri Lanka using secondary data during the period of 1980 to 2013.In this study, variables of gross capital formation, foreign direct investment, interest payment on foreign debt, import and weighted average of per capita income of the export destination countries are employed. The results reveled that foreign direct investment, import and interest payment on foreign debt impact positively on export performance of Sri Lanka. Conversely, gross capital formation and per capita income of the export destination impact negatively on export performance of Sri Lanka.

The study conducted in Madagascar to explore the determinants of export growth rate over a period 1985-2013.As determinants, the study takes variables including export price, foreign direct investment, world income, terms of trade, real exchange rate and farm gate price. The findings reveal that terms of trade have a significantly a positive impact on export growth rate while farm gate price has a negative effect on export growth rate. The foreign direct investment and world income have a weak positive influence on the export growth rate whereas export price level does not determine export growth rate sine export price level is not verified. Further, even if term of the real exchange rate positively impacts on export growth rate in short- run, but in long-run real exchange rate impact negatively on export growth rate (Tovonjatovo and Dong, 2015).

The study was conducted in developing countries to explore the determinant factors including external and internal factors. The results show that Gross domestic product, real exchange rate, labour force, savings and GDP growth are positively significant on exports in developing countries. Similarly, effects of expansions in communication facilities and official development assistance are also positive and significantly impact on export. While, foreign direct investment is not show a significant impact indicating Foreign direct investment found to be positively insignificant with exports in developing countries (Majeed and Ahmad, 2006).

Nadeem et al. (2012) they analyzed the impact of various determinants on exports in Pakistan over the period from 1981-2011. The findings revealed that selected explanatory variables including indirect taxes, world income, exchange rate, industry value added, and saving on exports have statistically positive significant influence on exports in Pakistan.

Skosan and Kabuya (2014) they conducted a study to identify the fundamental determinants in promoting the Swaziland export performance over the period 1980 - 2010. Their results exposed that, world demand, foreign direct investment, and nominal exchange rate were key significant determinants of the export performance. The real gross domestic product and domestic demand were not determined the export performance of Swaziland.

Ayan and Percin (2005) who to investigated the determinants of firm's export performance. By utilizing 160 Turkish industrial firms, the model with LISREL's structural equation modeling techniques was tested for this study. The findings revealed that the environmental and managerial factors and export marketing strategies had a substantial impact on the firm export performance. Additionally, the results also revealed that firm's demographic characteristics had not seem to be an important determinant of export performance.

Fugaza (2004) who conducted a study to investigate the contribution towards the performance of the external sector of linkages to international markets relative to internal supply-side conditions by using quantile regression techniques. The findings revealed that strong linkages to international markets, macroeconomic soundness, transport infrastructures, and good quality institutions were found to be key determinants of the external sector. whereas trade barriers continue to be of concern and poor supply-side conditions also have been the more important constraint of export performance in Africa and the Middle East.

The study is conducted to investigates the causality relationship between FDI, GDP and exports in Pakistan by using the time-series data from 1970 to 2012. Statistical techniques including Unit root test of (ADF), Phillip-Perron, Johansen's Cointegration analysis and Granger causality were utilized. In this study, Cointegration test results found that there is existence of a long run relationship among the variables in Pakistan economy. According to the Granger causality consequences, bi directional causality relationship exists among Foreign direct investment and Exports. Similarly, unidirectional relationship also found between Gross domestic product and Exports. Wholly, the study found that there is no causal relationship between Exports to Gross domestic product and Foreign direct investment to Gross domestic product in Pakistan (Shawal and Shen, 2013).

Above analyzed studies found that foreign direct investment, import, interest payment on foreign debt, terms of trade, world income, real exchange rate, gross domestic product, real exchange rate, labour force, savings, world demand, nominal exchange rate, environmental, managerial factors and export marketing strategies impact positively on export performance of Sri Lanka. Conversely, gross capital formation, farm gate price and per capita income of the export destination impact negatively on export performance of Sri Lanka. At the same time, the real gross domestic product, export price lssvel and domestic demand are not determined the export performance.

7. Results

7.1. Unit Root Analysis

As mentioned above, the unit roots test performs in order to avoid specious model due to trending variables since the use of nonstationary variables in the time series analysis leads to misleading inferences. This study utilized the Augmented Dickey–Fuller unit root test for testing whether a variable has a unit root or consistently, that the variable follows a random walk. The following table shows the results of Unit root test analysis.

Variables	Test statistic	Order of Integration	MacKinnon p-value
lngdp	-5.082	I (0)***	0.0000
lncap	-4.618	I (0)***	0.0001
lninfla	-4.590	I (0)***	0.0001
Infdi	-6.837	I (0)***	0.0000
lnexcha	-3.548	I (0)***	0.0068

Table 1: Augmented Dickey Fuller Test results
*** *indicate one percent significant level*
Source: Author's computation

At the results of ADF unit roots test presented in above table indicating all variables included in the study are stationary at levels. This is, because of the fact that unit roots test statistics are found as higher negative values resulting the null hypothesis can be rejected. In addition to that, MacKinnon p-value also established that GDP per capita growth, gross capital formation, inflation, foreign direct investment and exchange rate are stationary at their level. Therefore, the results confirmed that all the typical results of the regression analysis can be predictable with their valid results.

7.2. Normalized Cointegration Coefficients

The table 02 represents the results of normalized cointegration coefficients. According to the results, the model for Sri Lanka's exports can be specified as follows. The model comprises the signs of the coefficients which were reversed as the study utilized Johansen's method.

$$lnex = -63.69818 - 5.4007lnexp_t + 19.4804lngdp_t + 4.6766lninf_t + 1.9713Infdi_t + 0.2573lnexc_t$$

Variables	coefficients	Standard Error	t-value	p-value
lnexp	1			
lngdp	5.400707	.7662075	7.05	0.000***
lncap	-19.48039	5.984277	-3.26	0.001***
lninf	-4.67662	1.169365	-4.00	0.000***
Infdi	-1.971324	1.444169	-1.37	0.172
lnexc	-.2572978	.9997222	-0.26	0.797
cons	63.69818			

Table 2: Normalized Cointegration Coefficients results
*** *indicate one percent significant level*
Source: Author's computation

The results expose that explanatory variable in which GDP per capita growth, gross capital formationand inflation are found to be statistically significant at one percent level whereas foreign direct investment and exchange rate are found to be insignificant.

According to the estimated elasticity coefficients, gross capital formation and inflation are positively associated with Sri Lanka's exports of goods and services while GDP per capita growth negatively related with Sri Lanka's exports of goods and services. Estimated coefficient of gross capital formation is 19.4804 indicating if gross capital formationincreased by one percent it would be lead to increase gross capital formation by 19.4804. Similarly, Estimated coefficient of inflation is 4.6766. It reveals that 4.6766 percent increase in exports of goods and services is leaded by a one percent increase in inflation rate.

Further, estimated coefficient of GDP per capita growth is 5.4007. It seems that one percent increase in GDP per capita growth leads to 5.4007 percent decrease in export of goods and services. Other explanatory variables foreign direct investment and exchange rate are not associated with export as their results found to be insignificant in this study.

7.3. Vector Error Correction Method

Explanatory variable	Coefficient	Std error	T-statistics	Probability (p-value)
D_lngdp	-.170445***	.0505992	-3.37	0.001
D_lncap	.0063927	.0040599	1.57	0.115
D_lninfla	.0540022	.0356048	1.52	0.129
D_lnfdi	.0615669***	.0232059	2.65	0.008
D_lnexcha	-.0039347*	.0022434	-1.75	0.079
cons	-.0176086			

Table 3: Error Correction Model Results
***and * indicate 1% and 10% levels of significant, respectively.
Source: Author's computation

A summary of the Vector Error Correction model results is presented in Table 03.Vector Error Correction test was carried out to estimate short – run effects of explanatory variables. According to the error correction model results GDP per capita growth, foreign direct investment and exchange rate are statistically significant with exports.

In particularly, foreign direct investment found to be significant at one percent level indicating if one percent increase in foreign direct investment would be lead to increase exports by 0.06157 percent. This implies that foreign direct investment on infrastructure development, support to improve exports in Sri Lanka in short- run. While GDP per capita growth is negatively significant at one percent level means decrease in GDP per capita growth would lead to increase in exports of goods and services by 0.1704 percent in the short- run.In addition to that exchange rate also negatively associated with exports of goods and services in the short- run as exchange rate statistically significant at ten percent level. It represents that one percent increase in exchange rate would lead to 0.0039 percent decrease in exports. The results indicating that in the short- run, the appreciation of currency would lead to drop the Sri Lankan export growth.

On the whole, the complete results revealed that gross capital formation and inflation are positively determine the Sri Lanka's exports while GDP per capita growth negatively determines the Sri Lanka's exports in the long-run. At the same time, foreign direct investment and exchange rate are not determine the export in the long-run. Even though, in the short- run foreign direct investment positively determine on exports. Whereas, GDP per capita growth and exchange rate negatively impact on exports.

Entirely, the results confirmed that GDP per capita growth determines negatively on export performance in Sri Lanka in both long-run and short- run period as well. The positive coefficient expected for gross capital formation has been proved and it implies that capital formation encourages economic development in various pathways in the long – run period. Conversely, the study found negative impact of GDP per capita growth on exports in the long-run and short-run as well. This result was not expected since enhancing economic per capita growth lead to export performance positively. It may be happened due to the fact that increasing per capital growth possibly spend on debt repayment and interest rate on it rather than spending on export. Even ifGDP per capita growth has been spent on exports, it would not spend on industrial goods as mostly Sri Lankan exports focuses on tea, rubber, garments and textiles.

Further, in this study inflation determines positively on export performance in the long run period whereas inflation has no relationship on export in the short-run. Continued inflation leads to higher cost of production as exports in Sri Lanka depend on imported intermediate goods causing export earnings to decline. Though, the study found positive impact of inflation on export performance. Besides, foreign direct investment determines to exports in short- run period while itwould not be associated with export performance in the long – run period. Moreover, exchange rate also not to be associated with export performance in long-run. Therefore, further study should want in the area by including other variables which impact on exports in Sri Lanka as the country has been running a trade deficit.

8. Conclusion

The study was conducted to investigate the factors that determine exports in Sri Lanka. Secondary data were utilized to investigate the objective by gathering time series data over a period 1977 to 2015. Augmented Dickey Fuller unit root tests, Normalized Cointegration test and Vector error correction model was employed to test the research objective by utilizing the following explanatory variables namely GDP per capita growth, gross capital formation, inflation, foreign direct investment and exchange rate.

The stationary properties of time series data were confirmed by using Augmented Dickey Fuller unit root test. Accordingly, the unit root test results confirmed that all variables included in the study are stationary at levels. Secondly, the Normalized Cointegration test found that gross capital formation and inflation are positively associated with Sri Lanka's exports at one percent level whereas GDP per capita growth negatively related with Sri Lanka's exports at one percent of significant level. Further, other explanatory variables including foreign direct investment and exchange rate are not associated with export since those variables having insignificant results. Finally, short – run impacts of selected explanatory variables found using Vector Error Correction test. Accordingly, GDP per capita growth, foreign direct investment and exchange rate are associated with exports in short- run. In particular, foreign direct investment positively impacts on exports while GDP per capita growth and exchange rate found to be negatively impacts.

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